QC ABSTRACT

NAME OF WORK: Improvements to Drains of 5th Cross of Pampa Extension to 13th Cross Road of Pampa Extension in Ward No 7.

SL NO	Item Of Work	Name of Test	Frequency of Test/Quantity	Executed Quantity	Number of Tests Required	Number of Tests Conducted
		Materials				
1	Cement	Fineness by dry sieving	One Test		1	1
		Finess by Air permeablity method	One Test		1	1
		Density	One Test		1	1
		Standard Consistency	One Test		1	1
		Initial Setting time	One Test		1	1
		Final Setting time	One Test		1	1
		Soundness (Le Chatelier's Method)	One Test		1	1
		Compressive Strength	One Test		1	1
2	Coarse aggregate(40 mm down size)	SIEVE ANALYSIS	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
		Specific Gravity	One Test		1	1
		Bulk Density(Loose)	One Test		1	1
		Bulk Density(Compacted)	One Test		1	1
		Water Absorption	One Test		1	1
3	Coarse aggregate(20 mm down size)	SIEVE ANALYSIS	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
		Specific Gravity	One Test		1	1
		Bulk Density(Loose)	One Test		1	1
		Bulk Density(Compacted)	One Test		1	1
		Water Absorption	One Test		1	1
		Aggregate crushing Value	One Test		1	1
		Aggregate Impact Value	One Test		1	1
4	Fine aggregate	SIEVE ANALYSIS	One Test		1	1
		Water Absorption	One Test		1	1
		Specific Gravity	One Test		1	1
		Material finer than 75 micron	One Test		1	1
5	Block(400*100*200)	BLOCK DENSITY	One Test		1	1
		WATER ABSORPTION	One Test		1	1
		DIMENSION ANALYSIS	One Test		1	1
		COMPRESSIVE STRENGTH	One Test		1	1
6	KERB	Core Compressive strength	One Test		1	1
		Corrected Cylinder Compressive strength	One Test		1	1
		Equivalent Cube Compressive strength	One Test		1	1

Ashalf .ND
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TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID	:	**CP-2020-10-19-74** **Date: 06-07-20**
Customer	:	Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address	:	Kodigehalli Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Drains of 5th Cross of Pampa Extension to 13th Cross Road of Pampa Extension in Ward No 7.
Agency	:	Sri. Ramesh U, #12, 4th Cross Sunrise Colony, Cholanayakanahalli, R.T.Nagar (P), Bangalore-560032.
Customer's Reference	:	BBMP/EE/BTP/WO/236/2019-20
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	03-07-20
Sample Type	:	Birla Super 53grade
Reference to BIS codes	:	IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification , IS 4031 (Part 1,2 3,4,5, 6,11):1988 IS 4031 Part 1 DETERMINATION OF FINENESS BY DRY SIEVING, Clause 4.4 IS 4031 Part 2, Determination of Fineness by Blaine Air Permeability Method, Clause 5 IS 4031 Part 3, Determination of Soundness, Clause 5,Clause 6 IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5 IS 4031 Part 5, Determination of Initial & Final Setting Time, Clause 5 IS 4031 Part 11,DETERMINATION OF DENSITY , Clause 6
Date of test	:	04-07-20
Environmental Conditions during test	:	Temperature: 26°C Humidity: 72%

Sl.No.	Physical properties	Results	Requirement as per IS 12269: 2013
1	Fineness by dry sieving (%)	1.85	_
2	Finess by Air permeablity method (m^2/kg,Min)	348.6	225m^2/kg, Min
3	Density (gm/cc)	3.13	_
4	Standard Consistency (%)	28.5%	Not specified
5	Initial Setting time	135 minutes	Not less than 30 minutes
6	Final Setting time	245 minutes	Not more than 600 minutes
7	Soundness (Le Chatelier's Method)	1.5mm	Not more than 10 mm

* The results obtained are satisfactory as per standard requirements.

Note:

The results pertain to the samples received and tested.

All information furnished by Customer/Representative

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R.KARTHIK RECHAN
Authorized Signatory
Quality Manager

AE(W1)

Assistant Executive Engineer
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Bangalore - 560 092

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TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID	:	**CP-2020-10-19-74** **Date: 01-08-20**
Customer	:	Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address	:	Kodigehalli Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Drains of 5th Cross of Pampa Extension to 13th Cross Road of Pampa Extension in Ward No 7.
Agency	:	Sri. Ramesh U, #12, 4th Cross Sunrise Colony, Cholanayakanahalli, R.T.Nagar (P), Bangalore-560032.
Customer's Reference	:	BBMP/EE/BTP/WO/236/2019-20
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	03-07-20
Sample Type	:	Birla Super 53grade
Reference to BIS codes	:	IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification , IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5 IS 4031 Part 6, Determination of Compressive Strength, Clause 6
Date of test	:	04-07-20
Environmental Conditions during test	:	Temperature: 26°C Humidity: 72%

Compressive Strength

Sl.No.	Physical properties	Results	Requirement as per IS 12269: 2013
1	3 Days	28.0N/mm^2	Not less than 27 N/mm^2
2	7 Days	39.5N/mm^2	Not less than 37 N/mm^2
3	28 Days	58.0N/mm^2	Not less than 53 N/mm^2

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Authorized Signatory
Quality Manager

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TEST REPORT ON COARSE AGGREGATES

Lab ID	:	**CP-2020-10-19-74** **Date: 06-07-20**
Customer	:	Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address	:	Kodigehalli Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Drains of 5th Cross of Pampa Extension to 13th Cross Road of Pampa Extension in Ward No 7.
Agency	:	Sri. Ramesh U, #12, 4th Cross Sunrise Colony, Cholanayakanahalli, R.T.Nagar (P), Bangalore-560032.
Customer's Reference	:	BBMP/EE/BTP/WO/236/2019-20
Source of Sample	:	Sample supplied by Agency
Sample condition	:	Satisfactory
Date of Receipt	:	03-07-20
Sample Type	:	40mm down size coarse aggregate
Reference to BIS codes	:	IS: 383:2016 (Specification for Coarse and fine Aggregates) IS: 2386 :1963(Part - 1,3,4) RA2011 IS 2386 Part 1: Particle Size and Shape IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption IS 2386 Part 4: Mechanical Properties
Date of test	:	03-07-20

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 40MM DOWN COARSE AGGREGATE:

Total weight taken : 15000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	80 mm	0	0	0.0	100	100
2	40 mm	215	215	1.4	98.6	90-100
3	20 mm	7455	7670	51.1	48.9	30-70
4	10 mm	4266	11936	79.6	20.4	10-35
5	4.75 mm	2844	14780	98.5	1.5	0-5
6	Pan	220	15000	100.0	0	---

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TEST REPORT ON COARSE AGGREGATES

Lab ID : **CP-2020-10-19-74** **Date: 06-07-20**

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	11.9	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	12.3	
3	Specific Gravity	2.64	–
4	Bulk Density(Loose) (Kg/l)	1.41	–
5	Bulk Density(Compacted) (Kg/l)	1.47	–
6	Water Absorption(%)	0.23	–

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R KARTHIK RECHAN
Authorized Signatory
Quality Manager

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TEST REPORT ON COARSE AGGREGATES

Lab ID	:	**CP-2020-10-19-74** **Date: 06-07-20**
Customer	:	Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address	:	Kodigehalli Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Drains of 5th Cross of Pampa Extension to 13th Cross Road of Pampa Extension in Ward No 7.
Agency	:	Sri. Ramesh U, #12, 4th Cross Sunrise Colony, Cholanayakanahalli, R.T.Nagar (P), Bangalore-560032.
Customer Reference	:	BBMP/EE/BTP/WO/236/2019-20
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	03-07-20
Sample Type/ Size	:	20mm down size coarse aggregate
Reference to BIS codes	:	IS: 383:2016 (Specification for Coarse and fine Aggregates) IS: 2386 :1963(Part - 1,3,4) RA2011 IS 2386 Part 1: Particle Size and Shape IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption IS 2386 Part 4: Mechanical Properties
Date of test	:	03-07-20

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 20MM DOWN COARSE AGGREGATE:

Total weight taken : 5000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	40 mm	0	0	0	100	100
2	20 mm	225	225	4.5	95.5	90-100
3	10 mm	2845	3070	61.4	38.6	25-55
4	4.75 mm	1745	4815	96.3	3.7	0-10
5	Pan	185	5000	100	0	_

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TEST REPORT ON COARSE AGGREGATES

Lab ID : **CP-2020-10-19-74** **Date: 06-07-20**

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	13.2	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	10.1	
3	Specific Gravity	2.68	–
4	Bulk Density(Loose) (Kg/l)	1.43	–
5	Bulk Density(Compacted) (Kg/l)	1.49	–
6	Water Absorption(%)	0.23	–
7	Aggregate crushing Value(%)	22.9	Max 30% for Aggregates to be used in concrete for wearing Surface, In case Aggregate Crushing Value Exceeds 30% then the test for ten percent fines should be conducted for Aggregates to be used in concrete other than for wearing Surface.
8	Aggregate Impact Value(%)	23.7	30% for Aggregates to be used in concrete for wearing Surface, 45% for Aggregates to be used in concrete other than for wearing Surface.

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Authorized Signature
Quality Manager

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TEST REPORT OF FINE AGGREGATE

Lab ID : **CP-2020-10-19-74** **Date: 06-07-20**

Customer : Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.

Address : Kodigehalli Sub Division, BBMP, Bangalore.

Project Name : Improvements to Drains of 5th Cross of Pampa Extension to 13th Cross Road of Pampa Extension in Ward No 7.

Agency : Sri. Ramesh U, #12, 4th Cross Sunrise Colony, Cholanayakanahalli, R.T.Nagar (P), Bangalore-560032.

Customer's Reference : BBMP/EE/BTP/WO/236/2019-20

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 03-07-20

Sample Type : Fine Aggregate

Reference to BIS codes : IS 383 : 2016 (Specification for Coarse and fine Aggregates)
IS: 2386 :1963(Part - 1, 3) RA2012
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption

Date of test : 03-07-20

Total weight taken : 1000 grams

Sl.no	Sieve Size	Weight Retained (gms)	Cumulative Weight Retained (gms)	% Cumulative Weight Retained	% Passing	Requirement as per IS 383:2016			
						Grading Zone I	Grading Zone II	Grading Zone III	Grading Zone IV
1	10 mm	0	0	0.0	100.0	100	100	100	100
2	4.75 mm	26	26	2.6	97.4	90-100	90-100	90-100	95-100
3	2.36 mm	58	84	8.4	91.6	60-95	75-100	85-100	95-100
4	1.18 mm	237	321	32.1	67.9	30-70	55-90	75-100	90-100
5	600 micron	206	527	52.7	47.3	15-34	35-59	60-79	80-100
6	300 micron	205	732	73.2	26.8	5-20	8-30	12-40	15-50
7	150 micron	192	924	92.4	7.6	0-10	0-10	0-10	0-15
8	Pan	76	1000	100.0	0.0	---	---	---	---

Result :The tested Sample Conforms to Grading Zone II

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TEST REPORT OF FINE AGGREGATE

Lab ID : **CP-2020-10-19-74** **Date: 06-07-20**

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS 383:2016
1	Water Absorption(%)	1.6	–
2	Specific Gravity	2.57	–
3	Material finer than 75 micron(%)	6.8	Uncrushed fine Aggregate Max 3%, Crushed Fine aggregate Max 15%, Mixed Fine aggregate Max 12%, Manufactured Fine aggregate Max 10%

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Approved .N.D
AE(WQ)

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HIGHWAY & BUILDING MATERIALS TESTING LABORATORY | STRUCTURAL |
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TEST REPORT ON PHYSICAL REQUIREMENTS OF SOLID CONCRETE BLOCKS

Lab ID	:	**CP-2020-10-19-74** **Date: 17-08-20**
Customer	:	Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address	:	Kodigehalli Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Drains of 5th Cross of Pampa Extension to 13th Cross Road of Pampa Extension in Ward No 7.
Agency	:	Sri. Ramesh U, #12, 4th Cross Sunrise Colony, Cholanayakanahalli, R.T.Nagar (P), Bangalore-560032.
Customer's Reference	:	BBMP/EE/BTP/WO/236/2019-20
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	14-08-20
Sample Type/Size	:	Solid concrete blocks size (400X100X200)mm
Reference to BIS codes	:	IS : 2185 (Part 1) : 2005(RA 2010) Concrete Masonry Specification Part 1:Hollow and Solid Concrete Blocks (Dimensions -Annex-B, Clause 9.2 and 10 , Block density Annex -C Clause 9.3 and10, Compressive strength Annex -D Clause 9.4 and 10, Water absorption Annex -E Clause 9.5 and 10)
Date of test	:	14-08-20

BLOCK DENSITY:

Sl. No.	Measurement of overall Dimensions of Individual Blocks			Overall Volume of the Block in Cubic Centimetres	Weight of Oven Dried Block in Kilograms to the nearest 10 Gram	Block Density in Kg/cum*10^6	Avg.Block Density in (Kg/cum)	As per IS 2185(Part 1) :2005 (RA 2010)
	Length	Breadth	Height					
	mm	mm	mm	(Cm^3)	Kg	Kg/m^3	Kg/m^3	
1	402	102	201	8242	31.199	3785.4	3983.3	Not less than 1800Kg/m^3
2	405	103	198	8260	33.970	4112.8		
3	403	101	201	8181	33.147	4051.6		

WATER ABSORPTION:

Sl. No.	Wet weight after water absorption	Dry weight (Oven dry)	Water Absorption	Avg.Water Absorption	As per IS 2185(Part 1):2005 (RA 2010)
	kg	kg	%	%	
1	33.91	32.25	4.89	4.25	Shall not be more than 10% by mass
2	33.57	32.14	4.28		
3	33.44	32.24	3.59		

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Lab ID : **CP-2020-10-19-74** **Date: 17-08-20**

DIMENSION ANALYSIS

Sl.no	Length mm	Breadth mm	Height mm	Requirement as per IS 2185(Part 1):2005
1	400	100	203	Length : ± 5mm Breadth : ± 3mm Height : ± 3mm
2	402	102	201	
3	401	103	202	
4	400	103	202	
5	401	101	203	
6	401	99	202	
7	400	101	203	
8	400	101	201	
9	403	99	199	
10	402	102	201	
11	404	102	200	
12	400	102	200	
13	403	100	199	
14	404	101	200	
15	401	101	201	
16	402	101	200	
17	399	102	202	
18	401	101	201	
19	403	101	200	
20	403	102	203	
Average of 20	**401**	**101**	**201**	

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Lab ID : **CP-2020-10-19-74** **Date: 17-08-20**

COMPRESSIVE STRENGTH:

Sl. No.	Size of solid block		Area	Failure Load	Compressive strength	Average Compressive strength
	Length	Breadth				
	mm	mm	(mm^2)	(KN)	N/mm^2	(N/mm^2)
1	400	100	39822	177.8	4.5	4.3
2	402	102	41029	174.0	4.2	
3	401	103	41216	173.4	4.2	
4	400	103	41171	178.8	4.3	
5	401	101	40631	173.7	4.3	
6	401	99	39728	177.4	4.5	
7	400	101	40532	174.4	4.3	
8	400	101	40505	174.6	4.3	

As per IS Requirements (Table 2, Clause 5.1, 5.2 and 9.4)

Compressive strength		
Grade	**Minimum average**	**Minimum Individual units.**
C (5.0)	5.00 N/mm^2	4.00 N/mm^2
C (4.0)	4.00 N/mm^2	3.20 N/mm^2

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TEST REPORT OF CEMENT CONCRETE KERB STONE

Lab ID : **CP-2020-10-19-74** **Date: 07-09-20**

Customer : Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.

Address : Kodigehalli Sub Division, BBMP, Bangalore.

Project Name : Improvements to Drains of 5th Cross of Pampa Extension to 13th Cross Road of Pampa Extension in Ward No 7.

Agency : Sri. Ramesh U, #12, 4th Cross Sunrise Colony, Cholanayakanahalli, R.T.Nagar (P), Bangalore-560032.

Customer's Reference : BBMP/EE/BTP/WO/236/2019-20

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 03-09-20

Sample Type /Size : CC Kerb Stone/ 450*150*500mm

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete

Date of test : 03/09/2020

Sl. No.	Identification Mark	Diameter of the core	Height of the core	Weight of the core	Area	Failure Load	Core Compressive strength	Corrected Cylinder Compressive strength	Equivalent Cube Compressive strength
		(mm)	(mm)	Kg	(Sq.mm)	(KN)	(N/mm2)	(N/mm2)	(N/mm2)
1	A	75.01	150.51	2.164	4418	132.1	29.9	29.9	37.4
2	B	75.03	150.49	2.193	4421	135.2	30.6	30.6	38.2
3	C	75.01	150.50	2.115	4418	135.1	30.6	30.6	38.2

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Asst Exe Engg. KD.
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